Amendments to the Specification:

At Page 1, line 2, after the title, please insert the following paragraph:

-- CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of prior application Serial No. 09/040,103 filed on March 17, 1998.--

At Page 5, Line 17, after the section entitled "Summary of the Invention," please insert the following text:

-- The present invention is directed to a method for preparing a stable, retroviral packaging cell line for generation of human serum-resistant retroviral vector particles (RVP) which comprises introducing one or more packaging vectors into a non-primate mammalian cell line and recovering that cell line. The cell line of the invention exhibits substantially no hybridization to a Moloney-MLV retrovirus probe under stringent washing conditions and is capable of producing human-serum-resistant RVP. The packaging vectors of the invention, either singly or collectively, express a cellular targeting protein and retroviral gag and pol genes in amounts sufficient to package the RVP. In one embodiment the cell line is the Mpf cell line designated by ATCC accession number 1656-CRL. The cellular targeting protein expressed by the packaging vectors of the invention is an amphotropic retroviral env protein, a xenotropic retroviral env protein, a polytropic retroviral env protein, a JSRV env protein, vesicular stomatitis virus G protein or transferrin. The invention also includes the packaging cell lines produced by this method.

The invention further provides a method for preparing stable, retroviral producer cells capable of producing human serum-resistant RVP which comprises introducing a retrovirus vector into the packaging cell line of the invention and recovering the producer cells. The retrovirus vector introduced into the packaging cell line is capable of being packaged into an RVP and comprises a heterologous gene capable of expression in a human. The invention also includes the producer cells produced by this method and RVP prepared from these producer cells.

Another aspect of the invention relates to a method of preparing human serum-resistant RVP which comprises introducing a retrovirus vector into the packaging cell line of the invention, culturing the cell line for a time and under conditions sufficient to produce the RVP and recovering the RVP. This method produces RVP having a supernatant titer on mink

cell line Mv-1-Lu of at least about 10^4 to about 10^8 colony forming units per milliliter. The invention also includes the RVP produced by this method.

In another method, human serum-resistant RVP are prepared by a method which comprises culturing the producer cells for a time and under conditions sufficient to produce RVP and recovering the RVP. The invention also includes the RVP produced by this method.

Another aspect of the invention relates to a method for transducing a cell with a retroviral vector in the presence of a body fluid which comprises administering the RVP of the invention to the cell to be transduced. The RVP can be administered to the cell ex vivo or in vivo.

Yet another aspect of the invention provides a method of gene therapy which comprises delivering a therapeutic molecule encoded on a retrovirus vector to a human cell via an RVP of the invention. Preferably, the therapeutic molecule is a hormone, a growth factor, an enzyme, a lymphokine, a cytokine, a receptor, an angiogenic factor, or an anti-angiogenesis factor. The RVP can be administered to the human cell ex vivo or in vivo.

Still another aspect of the invention is directed to a method for transferring a heterologous gene into a human cell which comprises contacting the human cell with producer cells of the invention under conditions such that the producer cells release RVP containing a retrovirus vector encoding the heterologous gene and thereby introduce that gene into the human cell. The producer cells can be implanted in a human, including in the human brain.

The invention also provides pharmaceutical compositions comprising the RVP of the invention with a pharmaceutically acceptable carrier.--